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AUTHOR Duenk, Lester G.; Lear, George
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ABSTRACT

This learning activity package, one of six intended for use in Industrial Cooperative Training Programs, is designed to provide students with information on several general safety topics which would apply in most employment situations. (The industrial cooperative training program provides industrial occupational training experience for high school juniors and seniors who attend school one-half day and receive supervised work experience on the job.) Contents include a list of objectives, pretest, five learning activities, posttest, answer key for learning activities, and pretest and posttest answer key. The learning activities, each based on one objective, cover these topics: (1) Your Safety Attitude, (2) Hazards in Using Tools, (3) Personal Protective Equipment, (4) Use of Fire Extinguishers, and (5) Preferred Safety Practices. Each follows this format: objective, informative materials, and exercise/activity. (YLB)

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SAFETY

Learning Activity Package

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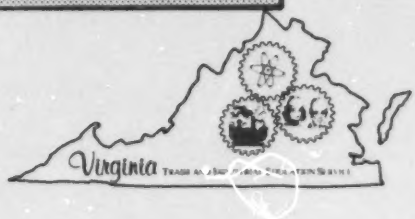
A Guide for Industrial Cooperative Training Programs



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PROJECT DIRECTOR: Lester G. Duenk

Workshop Instructor: Robert P. Braden

Editors: Ben L. Baines
Richard Lee Ross

Writers: Lester G. Duenk
George Lear

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SAFETY

Learning Activity Package

For use with
Industrial Cooperative Training Programs

TRADE AND INDUSTRIAL EDUCATION SERVICE
Division of Program Service
Vocational and Adult Education

S. John Davis
Superintendenet of Public Instruction
Department of Education
Commonwealth of Virginia
Richmond, Virginia 23216

May 1980

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INTRODUCTION

Accidents result from the mistakes made by workers and the misuse of materials and equipment. They cause a loss to the employer and employee alike. In most cases, a little bit of forethought, a little care, a little more alertness might mean the difference between disability or death on one hand, or an accident-free life on the other.

Just one foolish action,--perhaps your mind wandered, or maybe you took a foolish chance,--can cause much pain and suffering. Think about what it must be like to spend the rest of your life in a wheelchair, to loose the use of a hand or arm, or to be blind. Is it really worth taking foolish risks?

The misery, pain and suffering caused by needless accidents is serious enough but the loss of earning power must also be considered. You may be eligible for Workmen's Compensation or Welfare to tide you over, but you could not enjoy many luxuries if you were to depend completely on such income.

It would be well to consider also how your own feelings might change as a result of a long-term disability accident. Consider how it must feel to see others go to work each day, to be able to furnish a nice home, and buy nice things for their families--while you must have someone else to take care of you.

Nearly all accidents can be avoided. The most important method is simply to follow safety regulations and use common sense on the job, on the highway and at home. Unfortunately, we tend to think that accidents always happen to the other person--well, that other person could be you! Safety costs you nothing and saves you a lot.

NOTES TO STUDENTS

This Learning Activity Package (LAP) contains several general safety topics which would apply in most employment situations. The LAP is divided into the areas of safety attitudes, hazards in using tools, personal protective equipment, use of fire extinguishers, and preferred safety practices. Begin by taking the Pretest to assess how much you already know about safety. Study each information topic before beginning the learning activities.

OBJECTIVES

When you have completed this LAP you will be able to demonstrate your knowledge of safety by completing the following objectives with 90 percent accuracy.

A. Explain four characteristics which help to prevent accidents, and four characteristics which could lead to accidents.

B. Give examples of four hazards involved in using small tools on the job.

C. Demonstrate a knowledge of twelve basic points of equipment usage.

D. Describe ten components of Class A, B, C, and D fires.

E. Describe seventeen preferred safety practices to be observed in industry.

PRETEST

Give a response for each of the following. Be brief and to the point.

1. Explain why each of the following characteristics could help a person to prevent accidents.

   A. Calmness _____

   B. Alertness _____

   C. Remembers instructions _____

   D. Serious about work _____

2. Explain why each of the following characteristics could lead to accidents on the job.

   A. "Hot headed" _____

   B. "Lazy" _____

   C. "Forgetful" _____

   D. "Complainer" _____

3. Give an example of each of the following tool hazards.

   A. Using the wrong tool for a job.

   _____

   B. Using a tool incorrectly.

   _____

   C. Using an unsafe tool.

   _____

   D. Storing tools incorrectly.

   _____

Pretest (Continued)

Circle T if statement is True, F if it is False. If the statement is false, indicate why in the blank space which follows.

T F 4. Personal protective equipment eliminates hazards.

_____

T F 5. Most injuries in industry are a result of a failing to wear personal protective equipment.

_____

T F 6. Face shields protect the entire face.

_____

T F 7. Safety goggles serve the same purpose as face shields.

_____

T F 8. A pair of goggles which are "baffled" means that they have tinted glass.

_____

T F 9. The Wise Owl Club sets up eye safety standards.

_____

T F 10. A hair net is considered as personal protective equipment.

_____

T F 11. Neoprene gloves should be worn for handling acids.

_____

T F 12. A metal glove is used for handling hot objects.

_____

T F 13. Safety shoes have steel toes.

_____

T F 14. Supplied air respirators have filters to remove impurities from the air.

_____

T F 15. A gauntlet protects the legs and knees.

_____

Pretest (Continued)

Match the class of fire in the right hand column with type of fuel in the left-hand column. You may use the letters more than once.

_____	16. paper	Class A
_____	17. powdered aluminum	Class B
_____	18. rags	Class C
_____	19. motor wiring	Class D
_____	20. kerosene	
_____	21. paint	
_____	22. wood	
_____	23. transformer	
_____	24. powdered magnesium	
_____	25. gasoline	

Answer the following questions in the blanks provided.

26. How should broken glass be discarded?

_____

27. Why would it be unsafe to leave a tool on the top of a step ladder?

_____

28. What is a problem with carrying large boxes up or down steps?

_____

29. What are three things to look for in checking the safety of a ladder?

_____

30. What is a rule to follow when determining how far to reach out when working on a ladder?

_____

31. How is it determined if a ladder is set at a safe angle?

_____

Pretest (Continued)

32. Why is it unsafe to wear rings, watchbands or bracelets around machinery?

_____

33. What are pinch points? Give an example.

_____

34. What is the danger involved in wearing loose clothing around machinery?

_____

35. What could happen if you leave a running machine unattended?

_____

36. How would you extinguish the flames when clothing is caught on fire?

_____

37. How should you dispose of oily rags?

_____

38. What is a problem with using temporary wiring such as extension cords?

_____

39. What type of ladder should be used whenever working with electricity?

_____

40. What special safety precautions should be observed whenever you are doing electrical repair work?

_____

41. How would you help a person who has received electrical shock?

_____

42. What is the purpose of an eye fountain?

_____

LEARNING ACTIVITY A

YOUR SAFETY ATTITUDE

Objective: You will be able to explain four characteristics which help to prevent accidents, and four characteristics which could lead to accidents.

What are some things which you can do personally to act in a safe manner? First of all you can develop a safety attitude. In other words, you need to be aware of dangers in handling tools and materials, working with electricity, doing improper lifting, and other hazards. A safety attitude is really a "sixth sense". Something in your mind says to you: "Be careful, observe the dangers before you act". A good safety attitude will cause you to be cautious and think through your actions beforehand. Different workers show different levels of safety attitudes. Having a good safety attitude results in being a safe worker. The opposite is also true. It is really very simple--you probably will be free of accidents most of your life if you develop the right attitude toward safety.

Now let's contrast the good safety attitude with the poor safety attitude. The safety-minded worker follows the rules, is calm, alert, remembers things which were told, and is serious about doing a good job. The accident prone worker, on the other hand, shows such traits as being a show-off, "hot-headed", lazy, careless, disobedient, forgetful, bored with work, inattentive or a "complainer". So you see, your general attitude toward the job, has a lot to do with your feelings about safety.

Your Safety Attitude (Continued)

Let's think about some of the traits which make a person accident prone. If you become hotheaded easily, it is likely that you act on impulse without thinking about the safety needed on a particular job. The show-off is often so eager for attention that safety rules are disregarded. Sometimes too, such a worker purposely violates rules because it is thought to be smart or clever to show off to others what one can "get away with". The lazy worker may not want to go through the effort of practicing safety. Safety often involves some extra actions such as moving a ladder, putting on safety glasses, etc. The careless worker is usually just as careless in terms of personal safety in doing the job. This kind of person does not see dangers. The disobedient worker openly defies orders on the job and pays little attention to company regulations. Such a person will also defy posted safety rules. The worker who is forgetful, bored or inattentive will usually react in about the same way to safety rules on the job. This kind of person pays little attention to what is going on in other parts of the work area. The complaining worker who is always dissatisfied is likely to take this dissatisfaction "out" on the company. The complaining worker is often unhappy with the job in general, including the safety precautions which are part of the job.

What kinds of traits do you show on the job? Think about it. Do you have the kind of attitude which leads to safety and well being, or to accidents, time loss and suffering?

Your Safety Attitude (Continued)

Answer the following questions:

1. What is a safety attitude? _____

_____

2. What do we mean by a "sixth sense" toward safety? _____

_____

3. How does the safety conscious person act on the job? _____

_____

4. What are nine characteristics of the accident prone worker? _____

_____

_____

_____

_____

5. Could you describe five of your personality traits? How do you think these traits will affect your safety performance?

_____

_____

_____

_____

_____

_____

_____

LEARNING ACTIVITY B

HAZARDS IN USING TOOLS

Objective: You will be able to give examples of four hazards involved in using small tools on the job.

Did you know that one out of every ten injuries on the job involves the misuse of hand tools? Even at home a great variety of tools are now available to help us perform our jobs. In order to be really safe on the job, you must know how to use the "tools of the trade" safely. This learning activity will help you to avoid injury by alerting you to small tool hazards.

In performing our jobs we use wide varieties of small tools such as screwdrivers, knives, hammers and wrenches. These tools may have sharp edges, points, square corners, or pinch points. The shapes and design of tools combined with the force necessary to use them may be a cause of possible injury.

Use the Right Tool for the Right Job

Often there are several different tools which can do the job. From your own experience you probably realize that injuries can be caused when the wrong type of tool is used.

For example, note the knife being used to adjust the screw in Figure 1. It is likely the knife could slip and cause injury. Also the tip of the knife blade may break off and ruin it. A screwdriver should have been used for the job.

Fig. 1

By using the wrench that does not fit a nut properly, it is likely to

slip and cause injury to your hand. Always remember to use only the tools which are meant for the particular job you are doing.

Use the Tool Correctly

Using the right tool for the job is important, but it is equally important to use the tool correctly. Note that the worker in Figure 2 is holding the material with one hand while he turns the screw with the other hand. Such practice is sure to cause injury if the screwdriver slips. A worker who pushes a wrench in the direction of a protruding part is creating a hazard. Your supervisor will show you how to use tools properly. It is your responsibility to follow the directions completely.

Fig. 2

Be Sure the Tool is in a Safe Condition

A third thing to remember when using tools is to be sure that the tool is in a safe condition. Note in Figure 3 the "mushroom" head on the unsafe chisel. The worker who chooses to use the mushroom head tool would be taking a chance because metal pieces from the head could break off and cause injury. Never use tools which have cracked handles or tools which are not fastened properly to the handle. Always check each tool to be sure that it is in proper condition before you use it.

Fig. 3

Always Store Tools in a Safe Manner

The fourth thing to remember in using hand tools safely is to put tools in a safe place when not using them. Never put a jacknife in your pocket without folding the blade in. Do not store a sharp knife in a drawer with commonly used items like pencils or paper. Note in Figure 4 that the worker left a hammer on the top of the step ladder. What do you think will happen when another worker comes along and decides to move the step ladder? When you lay tools down or put them away, always think about safety for the next person who uses that tool. It could be you.

Fig. 4

You have studied about four major types of hazards. Be sure to think about practicing safety precautions each day until correct tool use safety becomes a habit.

17

Hazards in Using Too ontinued)

Part I

To the right there is a list of the four main tool hazards discussed. Match these hazards with the accidents listed on the left. You may use the letters more than once.

_____ 1. A worker moves a cabinet and is injured by a wrench falling from it.

____ 2. A worker is cut when pulling a chisel out of a drawer.

____ 3. An injury occurs from opening a paint can with a chisel.

____ 4. An old and worn wrench slips on a nut and the worker's knuckles are skinned.

____ 5. A worker is cut with sheet metal because the tin snips are being used incorrectly.

____ 6. A worker's hand is cut pushing the knife toward instead of away from the body.

____ 7. A worker is struck on the head by a hammer head which flies off from the handle.

____ 8. An injury occurs by using a screwdriver instead of a gear puller to remove a "frozen" part.

____ 9. A worker had a bad fall after stumbling on a tool left on the stairs.

____ 10. An injury occurs by using a mushroom head chisel to cut through a bolt.

A. The tool is not right for the job.

B. The tool in not being used correctly.

C. The tool is not in a safe condition.

D. The tool is not put away in a safe place.

Part II

Think of tool hazards which might occur in your place of employment. List three hazards under each category given below. If you do not use small tools on the job, list hazards which could occur at your home. Use different situations other than the ones presented in this learning activity.

1. The tools are not right for the job.

_____

_____

_____

_____

2. The tools are not being used correctly.

_____

_____

_____

_____

3. The tools are not in a safe condition.

_____

_____

_____

_____

4. The tools are not put away in a safe place.

_____

_____

_____

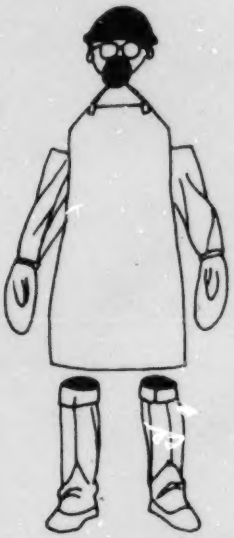
_____

LEARNING ACTIVITY C

PERSONAL PROTECTIVE EQUIPMENT

Objective: You will be able to demonstrate a knowledge of twelve basic points of equipment usage.

Personal Protective Equipment refers to such safety items as respirators, safety goggles, face shields and safety shoes. Many jobs in industry involve hazards which require you to take protective action. It becomes a personal matter for each employee to know how to use personal protective equipment.



You may have the idea that the company should be doing all of the safety planning for you. It is important to realize that you also have an obligation to protect yourself on the job. Studies show that over 12 percent of major and sub-major injuries occur because of employees' failure to wear personal protective equipment.

Remember, when you are working in a "hazardous area" or with hazardous materials, the wearing of personal protective equipment will not eliminate the hazard but it will protect you personally. Let's take a look at some of the different types of personal protective equipment.

Protection for Eyes and Face. In American industry there are over 1,000 serious eye injuries every day. Every year about 400 persons lose the sight of both eyes and over 3,000 persons lose the sight of one eye. Have you ever thought about what it might be like to be blind? Persons who were

blinded in accidents will think over and over again how much they wish they had observed eye safety rules.

There are many types of hazards which require different types of eye protection. It is important that you use the right kind or eye protection for a particular job.

Hazard Types Which Require Eye or Face Protection

	Examples
1. Impact of flying objects	Flying metal particles caused by chipping metal
2. Splash of liquids	Pouring of sulfuric acid into a vat
3. Splash of molten metals	Pouring molten iron in a foundry
4. Gas, fumes, smoke, vapor	Spraying lacquer in an auto body shop
5. Dust	Grain dust in a grinding mill
6. Light, glare or radiant energy	Welding, cutting or burning

Protection of the eyes and face is done with the use of (1) safety glasses, (2) face shields and (3) safety goggles. Note the difference between these types in Figure 1. Although your supervisor will instruct you on the exact type of eye or face protection which you need, it is good to know the difference yourself. It might keep you from selecting the wrong type.

Fig. 1.

Eye and Face Protection Equipment

Safety glasses will protect the eyes from small flying particles.

Personal Protective Equipment (Continued)

Such glasses should always have side shields to provide complete protection on all sides. Visitors who are touring a plant will generally be asked to wear safety glasses.

Face shields are meant to protect the entire face rather than the eyes only. They come in many shapes and styles. Some types protect the chin and ears, while others protect only the front of the face. Face shields allow open vision from all directions. Face helmets are made of a strong solid material, with a safety glass covered opening to permit vision. Helmets are used for electric welding and other jobs where heavy face protection is needed.

Safety goggles, also known as eye-cup goggles, completely protect the eyes by resting on the face bones around the eyes. Because they fit tightly around the eyes, they tend to fog up. Therefore, ventilation openings are provided to allow circulation or air. When dust or liquids are present, the ventilation openings are screened or baffled. Welders will require goggles with tinted glass and ventilation openings baffled against the light. Goggles are worn for acetylene welding, chemical handling, chipping, machining and handling molten metals.

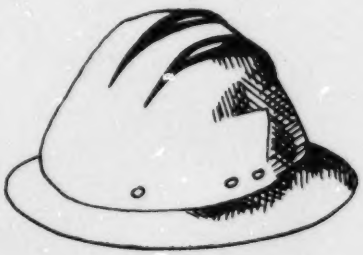
In each of the listed categories, there are many types of eye protection. Always check with your supervisor to be sure that you are using the right kind of eye protection for the job.

An exclusive club, the Wise Owl Club, accepts as members only those persons who saved the sight of one or both

Emblem of the Wise Owl Club

eyes through the use of personal eye protection. There are over 32,000 Wise Owl Club members in this country. How often do you think a Wise Owl Club member would wear required eye protection on his/her job?

Protection for Head and Ears. Certain jobs require protection of head and ears. Construction workers and others who work in areas when there is a danger of falling materials are required to wear hard hats. This type of hat is made of a strong, hard material that resists heavy impact without breaking. Hair nets, safety caps or bandannas are worn to keep long hair from being drawn into moving parts of machinery. Wearing such protection is very important around revolving equipment such as lathes or drill presses.



Hard hat

Ear protectors are being used more and more in industrial plants where noise control is difficult. Ear protectors seal out noise by providing a tight fit around the ear. Loud noises over a long period of time can cause permanent deafness. Ear plugs will also aid in reducing the sound which reaches the ear, although they are not as effective as ear protectors.

Ear protectors

Protection for the Hand, Foot and Leg. Nearly 60 percent of all disabling injuries involve the hands, feet and legs. Injury to hands and fingers is the most common type of accident. Many types of work require the use of gloves or mittens.

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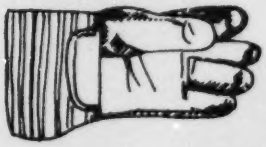
Personal Protective Equipment (Continued)

Type of Hand Protection and Suggested Uses

Handling acids		Neoprene glove
Handling sharp objects		Mesh glove
Handling wood materials		Leather glove
Handling hot castings		Abestos mit

Gloves are worn in order to protect the hands when handling materials. They should not be worn around revolving machinery. Note the different types of gloves and their uses in the above illustration.

Gauntlets are gloves which extend over the wrist and/or lower arm. They provide greater protection than gloves. Some workers wear hand pads or guards to protect the hands against sharp edges. Hand pads cover the palms and fingers but do not protect the back of the hand.

Many injuries occur from dropping heavy objects on the foot or toes. Safety shoes have been developed which have built-in steel toes.

Safety Shoe

A weight of from 1,000 to 2,500 lb. can be supported on the steel toe. Some safety shoes also have steel inner soles. This type of shoe protects a worker from stepping into sharp objects such as nails. Electricians should never wear this type of shoe because of electrical hazards.

Hip Leggings

Hip length or knee length leggings can be worn to protect the worker from sparks, acid or metal splashing. Leggings are usually made of asbestos, leather or flame-duck materials.

Respiratory Protection. Safety equipment which protects from the inhalation of dangerous fumes, dusts, gases and vapor is called respiratory equipment. There are two main types of equipment, air-purifying and supplied air.

The air-purifying type of equipment contains either a filter or a cartridge which traps the spray fumes, dust or mist. Respirators are designed for specific uses. You should always check with your supervisor in order to be sure you are using the correct type. For example, a filter type of respirator designed for rock dust will not protect the worker from paint fumes.

An Air-Purifying Respirator

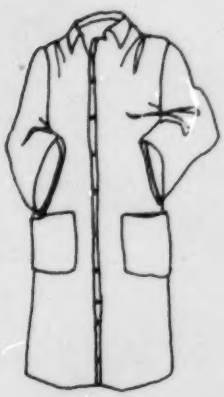
Personal Protective Equipment (Continued)

Supplied air respirators do not remove harmful materials from the air. This type of respirator provides clean air to the wearer from a special air tank.

Supplied Air Respirator

Other Types of Protective Equipment. Proper dress is important for the safety of workers. Use of shop coats, aprons and coveralls will aid in protecting the worker from chemicals and hot substances. Such dress also protects from grease and dirt.

Coats with sleeves should not be worn around moving machinery. Aprons may be bib-type or waist-type. The bib-type apron covers the chest down to the knees or ankles. Coveralls cover the whole body except for head, hands s and feet. They are usually made of a very rugged material and can stand wear over long periods of time.



Shop Coat

Apron

Coverall

Personal Protective Equipment (Continued)

Part I

1. Indicate which of the following could be considered personal protective equipment. Place a check mark in the blank space provided.

___ A. guards on machines

___ B. hard hat

___ C. a safe tool

___ D. welder's helmet

___ E. a respirator

___ F. a fire extinguisher

___ G. a hand rail around a pit

___ H. non-slip stairs treads

___ I. ear protectors

___ J. aisle markings

___ K. hair net

___ L. safety zone around a machine

___ M. safety goggles

2. What are purposes of personal protective equipment? Place a check mark in the blank space provided.

___ A. enclose dangerous machine parts

___ B. protect the head from falling objects

___ C. filter the air that you breathe

___ D. to apply to a cut or scratch

___ E. keep toe from being broken or crushed

___ F. shield the eyes from bright light

___ G. put out a fire

___ H. ground an electrical circuit

___ I. protect your hands from splinters

___ J. lower noise level that reaches ears

___ K. protect ankles from molten metal

___ L. keep a ladder from slipping

___ M. protect hands from chemicals

Personal Protective Equipment (Continued)

Part II.

Select the best answer to the following questions. Place the letter of the statement in the blank at the left.

____ 1. Which type of eye protection are visitors usually issued when touring a plant?

A. safety glasses

B. face shields

C. safety goggles

D. ear protectors

____ 2. In what way do safety goggles differ from safety glasses?

A. they cover the entire face

B. the glass is stronger

C. they are ventilated better

D. they fit tightly around the eye

____ 3. The Wise Owl Club serves what purpose?

A. a group of people who are interested in eye safety

B. a club whose members were saved from blindness in one or both eyes by using eye protection

C. a club interested in promoting general safety in industry

D. a student group which promotes safety contests

____ 4. Which group of workers would most likely be wearing hard hats?

A. assembly line workers

B. construction workers

C. office workers

C. machinists

Personal Protective Equipment (Continued)

____ 5. What is the main purpose of ear protectors?

A. protect ears from loud noise

B. protect ears from flying metal

C. protect ears from sparks in welding and cutting operations

D. protect ears from splashing chemicals

____ 6. Which type of glove should be worn when handling acids?

A. mesh

B. asbestos

C. leather

D. neoprene

____ 7. What is the purpose of gauntlets?

A. provide protection for ankles and legs

B. provide protection for wrists and lower arms

C. provide protection for back of hand

D. provide protection for toes and feet

____ 8. What is the purpose of a safety shoe with inner soles?

A. protection against stepping into sharp objects

B. protects toe from crushing

C. supports the arches

D. protects from electrical shock hazards

____ 9. Which of the following materials should not be used for leggings?

A. flame-duck

B. leather

C. denim

C. asbestos

Personal Protective Equipment (Continued)

____ 10. What is the purpose of a filter?

A. provides clean air from a special tank

B. traps spray, fumes, dust or mist

C. protects face and eyes from glare

D. protects ears from noise

LEARNING ACTIVITY D

USE OF FIRE EXTINGUISHERS

Objective: You will be able to describe ten components of Class A, B, C, and D fires.

Fire takes a heavy toll of lives and property each year. Should a fire break out, fast action can put it out before it spreads throughout the building.

State fire laws require that portable fire extinguishers be provided near work areas where fires are likely to occur. These extinguishers are meant to be used immediately, while the flame is still small. If you are alone, and a small fire is observed, use a portable fire extinguisher until the fire is controlled or until the extinguisher has been emptied. Then turn in an alarm immediately. If there are others persons around, one should immediately report the fire while others use portable fire extinguishers to put out the blaze.

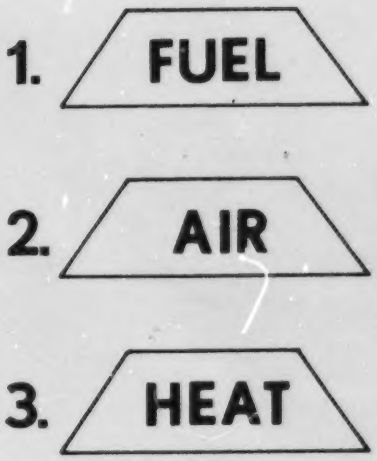
Remember that fire extinguishers are meant to put out a blaze before it spreads. Many plants have automatic sprinkler systems which provide extra protection, especially at night, on week-ends and other times when no one is present to report a fire.

In order to understand the use of fire extinguishers it is helpful to know about the nature of fire. Three things are needed for a fire to start. These are fuel, air, and heat.

Fuel is a type of material which will burn easily. Examples of fuel are wood, gasoline, paper and coal. If the fuel were suddenly removed, the fire would be extinguished. So, whenever there is fire there also must be fuel.

Use of Fire Extinguishers (Continued)

The second ingredient for a fire is air. Really it is the oxygen in the air that is necessary to keep the fire going. All fires need air to exist. When the metal cap on a cigarette lighter is snapped shut, the flame goes out because of lack of air. If you place your hand over the air intake of a carburetor, the engine will stop because of lack of air. In a real fire situation it is often possible to smother out the fire with a blanket or coat. By doing this you are cutting off the supply of air to the fire.



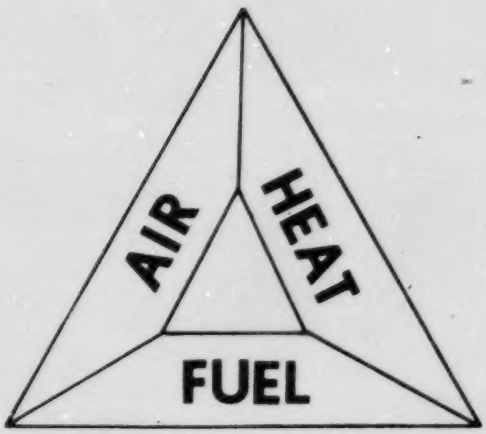
The Ingredients of Fire

A fire blanket cuts off the air supply.

The third ingredient needed for fire is heat. Fuels will not burn unless there is heat. Another name for heat is source of ignition. Some sources might be sparks from a welding unit, an electrical short circuit, overheated bearing or a propane torch flame. If a fire has already started, the heat given off produces good conditions for it to spread rapidly.

Use of Fire Extinguishers (Continued)

An easy way to remember the ingredients needed to start a fire is to think of a fire triangle with fuel, air, and heat on the three sides. There can be no fire unless all three ingredients are present. Removal of one or more sides of the triangle will cause the fire to extinguish.



Fire Triangle

There are certain differences in the way materials burn and how they are extinguished. Because of the differences, fires are grouped into Classes A, B, C, and D. A Class A fire would include paper, cloth, rubbish, rags, sawdust, rubber and other solid types of materials. Class A fires are very common and could occur at home or at work. Class A fires are usually extinguished by a cooling process--in other words--removing the heat side of the triangle. A Class A portable fire extinguisher does its job by cooling or quenching the fire. The solutions in a Class A extinguisher contain a high percentage of water and are usually known as pressurized water extinguishers.

Class B fires burn kerosene, lacquer, oil, grease, varnish and other solvents. Water is likely to spread such fires so foam, carbon dioxide, or dry chemical extinguishers are needed for extinguishing them. These materials will float on the liquid surface, blanketing it. When the air has been removed, the fire dies.

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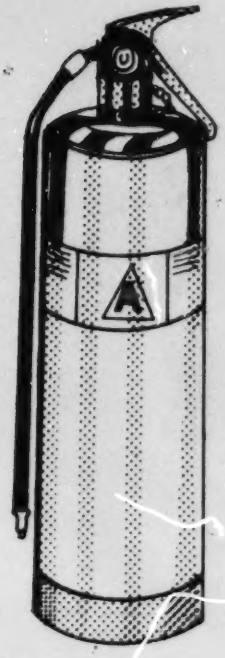
Use of Fire Extinguishers (Continued)



A Class A Fire
Pressurized Water Extinguisher

A Class B and C Fires
Dry Chemical Extinguishers

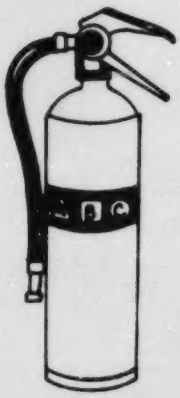
Class C fires occur in or near live electrical equipment. A Class C fire could occur in lighting circuits, appliances, motors, trasformers and other electrical equipment. Whenever electricity is present and a fire occurs, the material used to extinguish it must not be conductive, or carry an electrical current. Extinguishers which contain water should never be used on Class C fires. Two types of materials are used in Class C fire extinguishers. These are dry chemicals (also used for Class B fires) and liquified gas. Both of these materials will smother the fire, removing the air from the fire triangle.

Class D fires occur in certain powdered metals when heated to a very high temperature. These fires are not nearly as common as Class A, B, or C fires but can still be very difficult to extinguish. Examples of powdered metals

Use of Fire Extinguishers (Continued)

which could burn are magnesium, sodium, zinc, titanium, aluminum, and potassium. Special dry powdered chemicals are used in Class D fire extinguishers. This material, when applied to burning metals, acts like the dry chemicals used with Class B fires in smothering the flames. FOAM type extinguishers are most effective on Class B fires because foam bubbles tend to smother the fire. They are also effective on a Class A fire because the foa contains large amounts of water.

Class D Fire
Special Dry Powered Chemical



A Class A, B, and C All-Purpose Fire Extinguisher

Some fire extinguishers are marked "A B C". These are called all-purpose extinguishers and the material can smother or cool any of these types of fires, although not as effectively as each of the Class A, B, or C extinguishers separately. Always look on the extinguisher label to find out the type of fire for which it is intended. Think before you act. Directions for operation are printed on the fire extinguisher.

If you have not been trained in the use of fire extinguishers, ask your supervisor to show you how they are operated.

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Use of Fire Extinguishers (Continued)

Part I

Below are several types of fires which could happen sometime on your job. Circle the class of fire (A, B, C, or D), and check the type or types of fire extingushers to use. The first one has been done as an example.

Material Burning	Type of Fire	Type of Fire Extinguisher to Use
Powdered metal burning	A B C (D)	____ Pressurized water ____ Foam ____ Liquified gas ____ Dry chemical ✔ Special dry powder
Paper - wood burning	A B C D	____ Pressurized water ____ Foam ____ Liquified gas ____ Dry chemical ____ Special dry powder
Gasoline burning	A B C D	____ Pressurized water ____ Foam ____ Liquified gas ____ Dry chemical ____ Special dry powder
Electrical fire	A B C D	____ Pressurized water ____ Foam ____ Liquified gas ____ Dry chemical ____ Special dry powder

Use of Fire Extinguishers (Continued)

Part II

Circle T if the statement is True, F if it is False.

T F 1. If you are alone and you notice a small fire, you should use the fire extinguisher first, then turn in an alarm.

T F 2. An automatic sprinkler system serves the same purpose as a portable fire extinguisher.

T F 3. The fire triangle is composed of fuel, air and heat.

T F 4. A Class A fire is usually extinguished by removing the heat.

T F 5. Burning of wood is an example of a Class A fire.

T F 6. A fire in electrical equipment is considered a Class B fire.

T F 7. A class B fire should be extinguished with pressurized water.

T F 8. Class B fires are best extinguished by smothering.

T F 9. A Class C fire is fueled by powdered metal.

T F 10. A conductive material is used to extinguish a Class C fire.

T F 11. Class D fires are extinguished with foam.

T F 12. For putting out a Class A fire, a fire extinguisher marked Class A B C would be better than one marked Class A only.

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Part III

Give a statement for each of the following. Be brief and to the point.

1. Explain how you would handle the situation if you noticed a small fire and there were several other workers in the area.

_____

_____

_____

2. Give an example of each of the three ingredients of the fire triangle.

_____

_____

_____

3. Explain why it would not be wise to try to extinguish a Class B fire with a Class A extinguisher.

_____

_____

_____

4. What type of materials are used to put out Class C fires?

_____

_____

_____

5. Why are some fire extinguishers classified as A B C?

_____

_____

_____

LEARNING ACTIVITY E

PREFERRED SAFETY PRACTICES

Objective: You will be able to describe seventeen preferred safety practices to be observed in industry.

Your employer will explain and post safety rules which apply specifically to your place of work. In this learning activity you will study some basic safety rules which are good for you to know regardless of where you work or what your job is. These rules are divided into several safety categories.

Housekeeping

1. Keep your work place clean and orderly. Throw out waste stock and keep tools in their proper place.
2. Clean up any spills immediately.
3. Pile materials neatly so that there is no danger of falling.
4. Store materials in assigned places, never in aisles or corners.
5. Pick up things that are lying around. They could cause falls.
6. Never pile materials in front of fire extinguishers or fire doors.
7. Never leave tools on ladders or other places where they could fall and cause injury.
8. Keep flammable liquids in closed metal containers stored in a metal cabinet.
9. Put broken glass in a heavy bag or box before discarding.

Preferred Safety Practices (Continued)

Prevent Falls

1. Pick up scrap materials which could cause falls.

2. Wear shoes which are in good condition and give good support. Be sure that shoes have the right sole and heel material for the kind of floor surface on which you work.

3. "Unfunny" jokes can cause injuries. Do not ever startle someone with a loud noise or purposely trip someone.

4. When walking on stairs, do not carry something so big that you cannot see where you are going.

5. Stand on a ladder rather than boxes or chairs. Do not climb on shelves.

6. If you work on a scaffold, check it out thoroughly for any defective planks.

7. Check that guard rails and toe boards are in good shape.

8. On rolling scaffolds be sure that casters are locked and wheels blocked before climbing up.

Ladder Safety

1. Check your ladder for defects such as spreading rails, cracked rings or lack of safety feet.
2. Make sure that your ladder is long enough for the job. Do not stand above the third step from the top of the step ladder or above the fifth rung from the top of a straight ladder.
3. Always lock the spreader on a step ladder.
4. Always check that the ladder is set on the level. Use a board to level the footing if necessary.
5. Set the ladder at the correct angle. Count the number of rungs to the point of support. Divide by four. That is how many feet out the ladder should be placed.
6. Do not climb a ladder with mud on your shoes.
7. Always hang onto the rungs as you climb a ladder.
8. Always face the ladder whenever climbing up or down.
9. Check that the area at the base of the ladder is free of debris.
10. Never try to reach out too far. A rule to follow is to keep your belt buckle between the rails.
11. Always hold onto the ladder with one hand when working with tools.
12. Hang baskets or other equipment on a ladder bracket or hook.

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Preferred Safety Practices (Continued)

Guarding Your Hands

1. Check that machine guards are in place and operating correctly.
2. Never operate a machine without the guard in place. Guards are there to save your hands from injury.
3. Be sure to shut off a machine in order to oil, grease, clean or adjust it.
4. Keep your hands away from moving parts such as gears, rollers, belts and cutters.
5. Keep your hands clear when hoists and slings are being tightened.
6. Wear protective gloves when handling wire cable.
7. Use a mesh glove when cutting or slicing.
8. Always cut away from your body.
9. Never sweep away scraps or shavings with your hands. Always use a brush.
10. Do not wear rings, watchbands, bracelets, or necklaces around machinery.
11. Be alert for pinch points such as between a door frame and a crate.
12. Wear gloves in work situations where hand protection is necessary.
13. Use the right tool; make sure it is in good condition.

Preferred Safety Practices (Continued)

Machine Safety

1. Never remove a cover or guard that encloses moving parts.
2. Do not wear loose clothing or long sleeves around machine equipment.
3. Shut down a machine before making repairs.
4. Protect long hair with a hair net or safety cap.
5. Dress to suit the job.
6. Wear eye protection around all hazardous equipment.
7. Never leave a running machine unattended.
8. Only one person should operate a machine at one time.

Preferred Safety Practices (Continued)

Fire Safety

1. Know where fire fighting equipment is and how to use it.
2. Know your company rules about fire.
3. Store flammable liquids in approved metal safety containers.
4. Do not use highly flammable liquids for cleaning parts.
5. If clothing should catch on fire, smother flames by wrapping in a blanket, a coat, or rolling on the ground.
6. Know the proper procedure for evacuating the building in case of fire.
7. Never block fire doors.
8. Put oily rags in self-closing metal containers.
9. Know where gas cut-off valves are.
10. Do not allow an oil accumulation on the floor.
11. Keep oil and grease accumulations away from motors.
12. Do not smoke in the shop.
13. Wear non-flammable clothing.

Preferred Safety Practices (Continued)

Electrical

1. Check that all of your power tools are grounded.
2. Respect electricity. Assume that electrical equipment is "hot" and must be treated as such.
3. Know locations of all switches so you can turn off equipment quickly in case of accident.
4. Do not use temporary wiring of any kind.
5. Check that electrical boxes and other connections are covered properly.
6. Use a wooden ladder whenever working with electricity.
7. Check insulation and connections on all portable power tools.
8. Use rubber mats and gloves for electrical installation and repair.
9. Use insulated tools for electrical work.
10. Do not forget to turn off power before working on electrical equipment.
11. When unplugging an extension cord, pull on the plug instead of on the cord.
12. Report defective equipment immediately.
13. Use polarized plugs whenever possible. Avoid use of adapters.
14. Rescue a person who has received electrical shock by separating him/her from contact with electricity by the use of insulated material.

Preferred Safety Practices (Continued)

First Aid

1. Know where first aid kit is located.
2. If your place of employment has emergency medical services, contact office for company policies.
3. Check that first aid kit is stocked with the required supplies.
4. Report all injuries, minor or otherwise.
5. If caustic chemicals are used, check the location of an eye fountain.
6. Take a company sponsored or Red Cross first aid course if available in your community.

Preferred Safety Practices (Continued)

Part I

Circle T if the statment if True, F if it is False. If the statement is false, indicate why in the blank space which follows.

T F 1. Spills should be cleaned up immediately rather than at the end of the day.

_____

T F 2. Flammable liquids should be stored in glass containers.

_____

T F 3. Broken glass should be placed loosely in a waste container.

_____

T F 4. Dress shoes are usually safe to wear in the shop.

_____

T F 5. Practical jokes can cause someone to trip or fall.

_____

T F 6. A box makes a good substitute for a ladder.

_____

T F 7. You should be able to have clear sight ahead of you when carrying large objects up or down stairs.

_____

T F 8. Casters should be locked before climbing up a rolling scaffold.

_____

T F 9. A ladder with spreading rails is a safe ladder.

_____

T F 10. A ladder should be set with both legs level.

_____

T F 11. The bottom of a ladder should be placed away from a wall at a distance of 1/4 that of the length of the ladder.

_____

Preferred Safety Practices (Continued)

T F 12. You should always hold onto the rungs when you climb a ladder.

T F 13. If it is possible to do a job quicker without a guard, it is alright to remove the guard.

T F 14. Gloves should be worn when hoists and slings are being tightened.

T F 15. Wire mesh gloves are used for handling hot materials.

T F 16. When using a knife, draw it toward your body.

T F 17. Rings and jewelry are a hazard around moving machinery.

T F 18. Long hair should be protected around revolving machinery.

T F 19. Gasoline is recommended to clean grease from metal parts.

T F 20. If clothing should catch on fire, the best method for putting it out is with a Class B extinguisher.

T F 21. Caustic chemicals are washed out of the eye at an eye fountain.

T F 22. Electrical boxes require covers.

T F 23. An aluminum ladder is recommended when working with electricity.

T F 24. Rubber mats are advisable when making electrical repairs.

T F 25. It is a recommended practice to pull on the cord when removing the plug from the outlet.

Preferred Safety Practices (Continued)

Part II

Select five ways in which you will practice safety in each of the categories below. Think in terms of either your job or your home.

Housekeeping

_____

_____

_____

_____

_____

Preventing Falls

_____

_____

_____

_____

_____

Ladder Safety

_____

_____

_____

_____

_____

Guarding Your Hands

_____

_____

_____

_____

_____

Preferred Safety Practices (Continued)

Machine Safety

Fire Safety

Electrical Safety

Part III

Use the form which follows to do a shop safety survey of your place of employment. Ask permission from your supervisor before beginning the survey. If the survey form does not apply to your employment situation, plan a revised form which is appropiate. When you have completed the survey, discuss it with your instructor.

VOCATIONAL INDUSTRIAL CLUBS OF AMERICA
VOCATIONAL SHOP SAFETY SURVEY*

School _____ City _____ County _____ Date _____

Address _____ Shop _____

Survey by _____ Title _____

	Satisfactory	Needs Attention	REMARKS
A. GENERAL PHYSICAL CONDITION			
1. Machines, benches, and other equipment are arranged so as to conform to good safety practices			
2. Condition of stairways			
3. Condition of aisles			
4. Condition of floors			
5. Condition of walls, windows and ceiling			
6. Illumination is safe, sufficient and well placed			
7. Ventilation			
8. Temperature			
9. Fire extinguishers are of proper type, adequately supplied, properly located and maintained			
10. Teacher and pupils know location of, and use of, proper type extinguishers for various fires			
11. The number and location of exits is adequate			
12. Proper procedures have been formulated for emptying the room of pupils and taking precautions in case of emergencies			
13. Lockers are inspected regularly for cleanliness and fire hazards			
14. Locker doors are kept closed			
B. HOUSEKEEPING			
1. General appearance as to orderliness			
2. Adequate and proper storage space for tools and materials			
3. Benches are kept orderly			
4. Corners are clean and clear			
5. Special tool racks, kept in orderly condition are provided at benches and machines			
6. Tool, supply and/or material room is orderly			
7. Sufficient scrap boxes are provided			
8. Scrap stock is put in scrap boxes promptly			
9. Materials are stored in orderly fashion and in a safe condition.			
10. A spring lid metal container is provided for oily rags and waste.			
11. All waste materials and oily rags are placed in containers			
12. Containers for oily rags and waste materials are frequently and regularly emptied			
13. Dangerous materials are stored in metal cabinets			
C. EQUIPMENT			
1. Machines are arranged so that workers are protected from hazards of other machines, passing students, etc.			
2. Danger zones are properly indicated			
3. All equipment control switches are easily available to the operator			

	Satisfactory	Needs Attention	REMARKS
Equipment cont'd			
4. All machines are "locked off" when instructor is out of the room			
5. Brushes are used for cleaning equipment			
6. Non-skid areas are provided around machines			
7. Machines are in safe working condition			
8. Machines are guarded to comply with the State Industrial Code			
9. Adequate supervision is maintained where students are using machines and dangerous tools			
10. Tools are kept sharp, clean, and in safe working order			
D. ELECTRICAL INSTALLATION			
1. All switches are enclosed			
2. There is a master control switch for all of the electrical installations			
3. An electrician changes fuses of over 30 amperes			
4. Electrical outlets and circuits are properly identified			
E. PERSONAL PROTECTION			
1. Goggles are provided and required for all work where eye hazards exist			
2. If individual goggles are not provided, hoods and goggles are properly disinfected before use			
3. Shields are provided for electric welding			
4. Aprons or shop coats are worn in the shop			
5. Rings and other jewelry are removed by pupils when working in the shop			
6. The proper kind of wearing apparel is worn for the job being done			
7. Leggings, safety shoes, etc. are worn in special classes such as foundry, etc.			
8. A respirator is used when spraying in the finishing room			
F. INSTRUCTION			
1. Shop safety is taught as an integral part of each teaching unit			
2. Safety rules are posted			
3. Printed safety rules are given each student			
4. The pupils take a safety pledge			
5. The shop makes use of a safety inspector			
6 There is a shop safety committee			
7. Safety contests are promoted			
8. Motion and/or slide films on safety are used in the instruction.			
9. The shop has a safety suggestions box			
10. Safety tests are administered			
11. Safety posters are in evidence			
12. Talks on safety are given by industry representatives			
13. Tours are taken of industrial plants as a means of studying safety practices			
14. Periodic safety inspections of the shop are made by a student committee			
15. Industrial representatives make safety inspections of the shop			

	Satisfactory	Needs Attention	REMARKS
G. ACCIDENT RECORDS			
1. Adequate accident statistics are kept			
2. Accidents are reported to the proper administrative authority			
3. A copy of each accident report is filed with the State Department of Education or appropriate agency			
4. Accident reports are analyzed for instructional purposes and to furnish the basis for elimination of hazards			
H. FIRST AID			
1. An adequately stocked first aid cabinet is provided			
2. The first aid is administered by a qualified individual			
3. The school has two or more individuals qualified to administer first aid			

*Reprinted from VICA U. S. Skill Olympics, Vocational Industrial Clubs of America, Leesburg, VA. 1980.

POSTTEST

Give a response for each of the following. Be brief and to the point.

1. Explain why each of the following characteristics could help a person to prevent accidents.

   A. Calmness _____

   B. Alertness _____

   C. Remembers instructions _____

   D. Serious about work _____

2. Explain why each of the following characteristics could lead to accidents on the job.

   A. "Hot headed" _____

   B. "Lazy" _____

   C. "Forgetful" _____

   D. "Complainer" _____

3. Give an example of each of the following tool hazards.

   A. Using the wrong tool for a job.

   _____

   B. Using a tool incorrectly.

   _____

   C. Using an unsafe tool.

   _____

   D. Storing tools incorrectly.

   _____

Posttest (Continued)

Circle T if statement is True, F if it is False. If the statement is false, indicate why in the blank space which follows.

T F 4. Personal protective equipment eliminates hazards.

_____

T F 5. Most injuries in industry are a result of a failing to wear personal protective equipment.

_____

T F 6. Face shields protect the entire face.

_____

T F 7. Safety goggles serve the same purpose as face shields.

_____

T F 8. A pair of goggles which are "baffled" means that they have tinted glass.

_____

T F 9. The Wise Owl Club sets up eye safety standards.

_____

T F 10. A hair net is considered as personal protective equipment.

_____

T F 11. Neoprene gloves should be worn for handling acids.

_____

T F 12. A metal glove is used for handling hot objects.

_____

T F 13. Safety shoes have steel toes.

_____

T F 14. Supplied air respirators have filters to remove impurities from the air.

_____

T F 15. A gauntlet protects the legs and knees.

_____

Posttest (Continued)

Match the class of fire in the right hand column with type of fuel in the left-hand column. You may use the letters more than once.

_____	16. paper	Class A
_____	17. powdered aluminum	Class B
_____	18. rags	Class C
_____	19. motor wiring	Class D
_____	20. kerosene	
_____	21. paint	
_____	22. wood	
_____	23. transformer	
_____	24. powdered magnesium	
_____	25. gasoline	

Answer the following questions in the blanks provided.

26. How should broken glass be discarded?

_____

27. Why would it be unsafe to leave a tool on the top of a step ladder?

_____

28. What is a problem with carrying large boxes up or down steps?

_____

29. What are three things to look for in checking the safety of a ladder?

_____

30. What is a rule to follow when determining how far to reach out when working on a ladder?

_____

31. How is it determined if a ladder is set at a safe angle?

_____

Posttest (Continued)

32. Why is it unsafe to wear rings, watchbands or bracelets around machinery?

_____

33. What are pinch points? Give an example.

_____

34. What is the danger involved in wearing loose clothing around machinery?

_____

35. What could happen if you leave a running machine unattended?

_____

36. How would you extinguish the flames when clothing is caught on fire?

_____

37. How should you dispose of oily rags?

_____

38. What is a problem with using temporary wiring such as extension cords?

_____

39. What type of ladder should be used whenever working with electricity?

_____

40. What special safety precautions should be observed whenever you are doing electrical repair work?

_____

41. How would you help a person who has received electrical shock?

_____

42. What is the purpose of an eye fountain?

_____

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ANSWER KEY - ACTIVITY A: YOUR SAFETY ATTITUDE

Model answers

1. A person with a good safety attitude is aware of dangers and uses care before acting.

2. A sixth sense is a feeling which tells us to observe danger before acting.

3. The safety conscious person follows rules, is calm, alert, remembers what he/she is told, and is serious about the job.

4. The accident prone worker shows traits like being a show-off, "hotheaded, lazy, careless, desobedient, forgetful, bored with work, inattentive or "complainer".

5. (Individual responses)

ANSWER KEY - LEARNING ACITIVITY B: HAZARDS IN USING TOOLS

Part I

1.	D	6.	B
2.	D	7.	C
3.	B	8.	A
4.	C	9.	D
5.	B	10.	C

Part II

(Individual responses)

ANSWER KEY - LEARNING ACTIVITY C: PERSONAL PROTECTIVE EQUIPMENT

Part I

1.		2.	
	A		A
x	B	x	B
	C	x	C
x	D		D
x	E	x	E
	F	x	F
	G		G
	H		H
x	I	x	I
	J	x	J
x	K	x	K
	L		L
x	M	x	M

Part II

1.	A	6.	D
2.	D	7.	B
3.	B	8.	A
4.	B	9.	C
5.	A	10.	B

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ANSWER KEY - LEARNING ACTIVITY D: USE OF FIRE EXTINGUISHERS

Part I

A - Pressurized water; Foam

B - Foam; Dry chemical

C - Liquified gas; Dry chemical

Part II

1.	T	7.	F
2.	F	8.	T
3.	T	9.	F
4.	T	10.	F
5.	T	11.	F
6.	F	12.	F

Part III - Model Answers

1. One person should turn in a fire alarm while another person uses the fire extinguisher.

2. Fuel: Any combustible material such as wood, paper, gasoline, or rubber.
   Air: The oxygen in the air is the necessary ingredient.

   Heat: Also known as source of ignition.
   Examples: Electrical spark, overheated boiler, short circuit, torch flame, etc.

3. Class A extinguishers contain water. Water applied to a Class B fire would spread the flames. A foam type of material should be used in order to smother the fire (or remove the oxygen).

4. Dry chemicals and liquified gas.

5. Such extinguishers contain an all-purpose extinguishing material which acts to smother the fire.

ANSWER KEY - LEARNING ACTIVITY E: PREFERRED SAFETY PRACTICES

Part I

1. T

2. F - Flammable liquids should be stored in metal containers.

3. F - Broken glass should be put in a bag or box before throwing it in a waste container.

4. F - Dress shoes do not serve as safety shoes because they do not have steel toes or inner soles.

5. T

6. F - A box is not a safe device on which to stand. It may slip or break.

7. T

8. T

9. F - Spreading rails indicate that the rungs may be loose.

10. T

11. F - The bottom of the ladder should be 1/4 the distance from the base to the point where the ladder is supported.

12. T

13. F - Guards should never be removed without the supervisor's permission.

14. T

15. F - Wire mesh gloves are used when there is danger of cutting the hand or fingers with a sharp object.

16. F - A knife should be drawn in the opposite direction of the body.

17. T

18. T

19. F - Gasoline should not be used because it could ignite, causing an explosion.

20. F - If clothing catches on fire, it would be best to smother it with a blanket, coat, or by rolling on the ground or floor.

21. T

Answer Key - Preferred Safety Practices (Continued)

22. T

23. F - An aluminum ladder is a conductor of electricity. A wooden ladder should be used.

24. T

25. F - One should pull on the plug whenever removing an electrical extension cord from an outlet.

Part II

(Individual responses)

Part III

(Individual responses)

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ANSWER KEY: PRETEST - POSTTEST

1. A. Calmness: A person who thinks through each situation in a calm sort of way is less likely to become injured than someone who is hurried or impatient.

   B. Alertness: The alert worker sees dangerous conditions and acts accordingly.

   C. Remembers instructions: This type of worker remembers safety precautions after being told the first time. Workers who must learn through repeated mistakes are expensive to the company.

   D. Serious about work: The workers who really care about their jobs are less likely to be involved in accidents than careless workers because such workers tend to be more serious about practicing safety regulations.

2. A. Hotheaded: Hotheaded employees will act on impulse, without thinking.

   B. Lazy: The lazy worker will not go through the extra effort of practicing safety.

   C. Forgetful: This type of worker usually forgets safety rules because he/she does not think they are important.

   D. Complainer: This kind of person is always dissatisfied and takes this dissatisfaction out on the company, including disregard for safety.

3. (This will vary, depending on the place of employment)

4. False - Personal protective equipment does not eliminate the hazards but serves to protect the worker from a hazard which cannot be easily corrected; i.e., dust, gas, glare, etc.

5. False - About 12 percent of all industrial injuries are a result of failing to use personal protective equipment.

6. True

7. False - Safety goggles protect only the eyes. Face shields protect the entire face.

8. False - Baffled openings are meant to screen glare or hazardous particles.

9. False - The Wise Owl Club accepts as members people who saved the sight of one or both eyes by using personal eye protection.

10. True

Answer Key: Pretest - Posttest (Continued)

11. True

12. False - An asbestos glove is used for hot objects.

13. True

14. False - Supplied air respirators provide clean air to the wearer from a special air tank.

15. False - A gauntlet protects the wrist and/or lower arm.

16. A

17. D

18. A

19. C

20. B

21. B

22. A

23. C

24. D

25. B

26. Broken glass should be put in a bag or box before it is placed in the trash can.

27. Someone moving the step ladder might be injured if the tool falls.

28. If a box gets in the way of your vision, you may not know when you have reached the bottom or the top step.

29. Spreading rails, cracked rungs, lack of safety feet.

30. Keep your belt buckle between the rails.

31. Count number of rungs from the bottom to the point of support. Divide by four. This is the number of feet which the ladder should be away from the wall of structure.

Answer Key: Pretest - Posttest (Continued)

32. Jewelry may get caught in the machinery.

33. Pinch points are spots where it is easy to get a finger or hand pinched or caught. Example: areas between a door frame and a crate.

34. Loose clothing may get caught in the machinery.

35. Another person might not realize that it is unattended, and become injured by moving parts.

36. Wrap in a blanket or coat, or roll on the floor.

37. Oily rags should be placed in a self-closing metal container.

38. Extension cords promote spark hazards as well as being a tripping problem.

39. A wooden ladder.

40. Work on a rubber mat. Use rubber gloves and insulated tools.

41. Separate the victim from contact with electricity by using an insulated material.

42. An eye fountain is needed to wash caustic chemicals from the eye.